Jackson, Hylton [DNR]

From: Don Edds [edds@abengineers.com]
Sent: Monday, April 22, 2013 11:12 PM
To: Jackson, Hylton [DNR]
Subject: Sub Slab Vapor Sampling - Polk County Convention Center
Attachments: 123226B Sub Slab Vapor Sampling Work Plan.pdf

CON 12-15
Doc #28472

Hylton,

Here is a brief work plan for the sub slab vapor sampling to be performed at the Polk County Convention Center. Please call or email if you have any questions.

Thank you.

Don Edds
Allender Butzke Engineers Inc.
3660 109th Street
Urbandale, Iowa 50322
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ALLENDER BUTZKE ENGINEERS INC.
GEOTECHNICAL • ENVIRONMENTAL • CONSTRUCTION Q. C.

YMCA of Greater Des Moines
101 Locust Street
Des Moines, Iowa 50309

28472

April 22, 2013

Attn: Vernon Delpesce

RE: Work Plan for Sub Slab Vapor Sampling
Wellmark YMCA Addition
6th and Grand Avenue
Des Moines, Iowa
PN 123226

Dear Mr. Delpesce:

The following report presents a brief Work Plan for additional site assessment activities to be performed at the above-referenced site. The Work Plan has been prepared at the request of the Contaminated Sites Section of the Iowa Department of Natural Resources in a letter dated April 1, 2013. The Work Plan outlines procedures for sub slab vapor sampling to be performed in the Polk County Convention Center.

We appreciate the opportunity to provide our environmental services for this project. If you have any questions concerning this work plan or require further assistance, please contact our office at your convenience.

Respectfully,
ALLENDER BUTZKE ENGINEERS INC.

Donald D. Edds
Environmental Geologist

1 Email Above (vernon.delpesce@dmymca.org)
1 Email Architects Smith Metzger, Attn: Steve Getz, AIA (sgetz@smithmetzger.com)
1 Email Iowa DNR, Attn: Hylton Jackson (hylton.jackson@dnr.iowa.gov)

Introduction

A Phase I Environmental Site Assessment report was prepared for the property on January 17, 2013 and a Phase II ESA report was prepared on March 15, 2013 by Allender Butzke Engineers Inc. The Phase II ESA revealed that elevated levels of PCE and TCE were present in groundwater on the Wellmark Holdings and Polk County property located at 6th and Grand Avenue. The PCE is believed to have originated from a dry cleaning business that was previously located on the property. The highest levels of PCE in groundwater were discovered in monitoring wells located adjacent to the west side of the Polk County Convention Center.

The Phase I and Phase II ESA reports were submitted to the Contaminated Sites Section of the Iowa Department of Natural Resources for their review. In a letter dated April 1, 2013 the IDNR directed Wellmark Holdings to conduct sub slab vapor sampling inside the Polk County Convention Center.

Sub Slab Vapor Sampling

Sub slab vapor samples will be collected from two locations in the basement of the Polk County Convention Center. The sampling locations are shown on the enclosed Site Plan. The samples will be collected in accordance with the enclosed guidelines provided by the IDNR. For each sample location, a half-inch diameter hole will be drilled through the floor slab using an air hammer. The hole will be advanced two to three inches into the soil beneath the slab. The depth to the top of the slab and the thickness of the slab will be measured and recorded.

PTFE tubing (1/4-inch O.D.) will be inserted into the hole and extended to the bottom of the slab. The annular space between the concrete and the tubing will be sealed with 100% beeswax. Prior to sampling, the tubing will be purged using a 60cc gas-tight syringe. Approximately three tubing volumes will be purged.

The purged tubing will be connected to a summa canister provided by Pace Analytical Services. The summa canister is equipped with a flow controller and is shown on the attached instruction sheet. Initial and final vacuum pressures and sampling times will be recorded and the summa canister sample will be collected per instructions provided by Pace Analytical. The sampling canisters will sealed, properly labeled, securely packaged and shipped to the laboratory for analysis. Following sampling, the PTFE tubing will be removed and the slab holes will be sealed with cement.

Laboratory Analysis

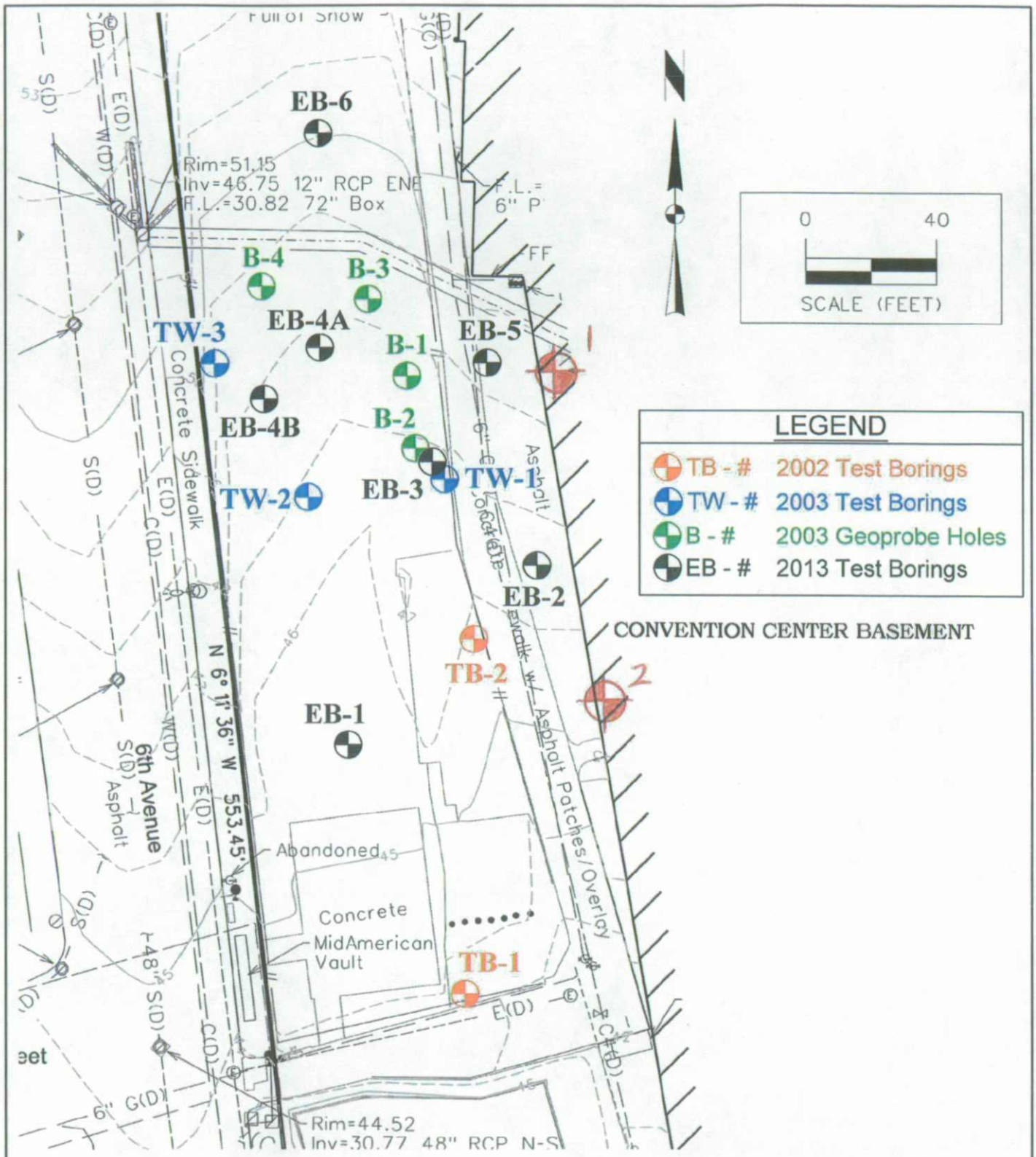
Laboratory analysis of the sub slab vapor samples will be performed by Pace Analytical Services Air Lab in Minneapolis, Minnesota. The vapor samples will be analyzed for volatile organic compounds (VOCs) by EPA Method TO-15.

Safety

The sub slab vapor sampling will be performed using Level D personal safety protection. Personal protective equipment will include safety glasses, hard hat, steel-toes boots and gloves. Vapor sampling locations will be selected that are free of utilities and other sub slab obstructions. Efforts will be made to remove potential background sources of indoor air contamination. In addition, slab surfaces and drilling equipment will be cleaned with water and dried prior to sampling.

Reporting

A written report detailing the results of the sub slab vapor sampling will prepared for the client. The report will include details on the sampling probe installation, photographs and laboratory analytical reports. A Site Plan showing the vapor sampling locations will be included in the report.



Base Plan by Snyder & Associates, Inc.

ALLENDER BUTZKE ENGINEERS INC. 3660 - 109th Street Urbandale, IA 50322	**Wellmark YMCA Addition** **6th and Grand Avenues** **Des Moines, Iowa**	**PN 123226B** **Site Plan**

Sub-slab soil gas samples will be collected as follows.

Temporary sampling probes should be installed using the following procedures:

- Identify sampling location(s) on a floor plan that also identifies any slab breeches (e.g., utility penetrations, sumps, drains, and cracks) and locations of HVAC equipment.

- Insert a section of new food-grade (inert) Teflon® or other appropriate tubing through an approximate 3/8-inch hole drilled through the slab. If necessary, advance the drill bit 2 to 3 inches into the sub-slab material to create an open cavity. Use the bit to measure the slab thickness.

- Install the tubing inlet to the specified sampling depth at or near the bottom of the slab.

- Seal the annular space between the hole and tubing using 100% beeswax or another inert, non-shrinking sealing compound.

Sub-slab soil gas samples should be collected using the following procedures:

- Purge the tubing using a vacuum pump or gas-tight syringe (~60 cc). Calculate the volume of air (volume = $\pi r^2 h$) in the tubing and purge three tubing volumes prior to sample collection at a rate no greater than 0.2 liter per minute (lpm).

- Use an evacuated 1-Liter Summa® passivated (or equivalent) canister to collect the sub-slab vapor sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate for the duration of 5 minutes for sample collection. The sampling flow rate should always be less than 0.2 lpm.

- Remove the protective brass plug from canister. Connect the pre-calibrated flow controller to the canister.

- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of-custody form for each sample.

- Connect the tubing from the sub-slab vapor sampling probe to the flow controller.

- Completely open the valve on the canister. Record the time that the valve is opened (beginning of sampling) and the canister pressure on the vacuum gauge.

- Photograph the canister and the area surrounding the canister.

- Stop sample collection after the scheduled duration of sample collected, but when the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure.

- Record the final vacuum pressure and close the canister valve. Record the date and time that sample collection was stopped.

- Remove the flow controller from the canister and replace the protective brass plug.

- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.

- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.

- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.

- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew should retain a copy of the chain-of-custody for the project file.

- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).

- For temporary probes, remove the probe and seal the slab hole with cement. Repair flooring, if any.

Pace Analytical®

EZ-CANS

PREASSEMBLED CANISTERS

Sampling Instructions for EZ-CANS

Preassembled Air Canisters

Unpack EZ-CANS

1. Remove the protective EZ-CANS foam insert from the box and retain it for return shipping.
2. To remove from the box, lift and carry EZ-CANS by the frame ring near the top of the canister. Avoid lifting by the flow controller or any part of the sampling assembly.
3. EZ-CANS are completely preassembled, leak-checked and ready to go.

Prepare to Sample

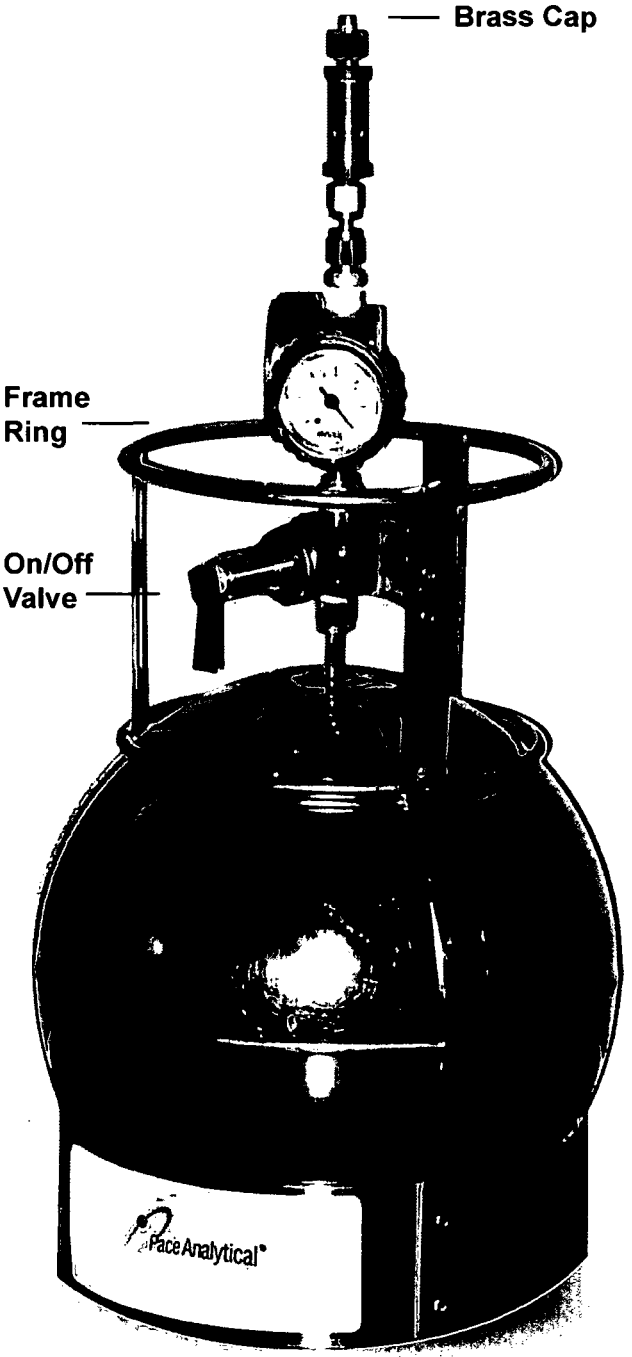
1. Review the contents of the package to ensure you have everything you need.
2. Remove the brass cap from the top of the sampling assembly by turning counter clockwise. It should be finger tight, if necessary use a 9/16" wrench.
3. Position the EZ-CANS for sampling. NOTE: If tubing and fittings are needed to sample subsurface or a hard to reach area, you will find these items and all instructions in an enclosed plastic bag.

Begin Sampling

1. Open the canister valve to begin sampling. Pace uses two valve styles:
   a. Rotary: One full turn counter clockwise
   b. Toggle: Flip the valve upward
2. The decline in vacuum should be directly proportional to the collection time.
3. Record initial vacuum on the Chain Of Custody. *Initial Field reading (-inches of Hg)

End Sampling

1. Close the canister valve and record the vacuum gauge reading on the Chain of Custody. *Final Field reading (-inches of Hg)
2. Reattach the brass cap to the top of the sampling assembly.
3. Repack the canister using the protective foam insert to ensure the integrity of your sample.
4. Complete the shipping and COC documents and call the carrier for pickup.



Questions? Call 612-607-6386

Return to Pace Analytical @ 1700 Elm Street, Minneapolis MN 55414
Questions? Please call the Air Technical phone number 612-607-6386